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especially important with limited **user interface** devices like. mobile phones. ... SQL

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industry-standard approaches such as **Structured Query Language** ... support manipulation and **context-aware** validation. That is, ...

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for **Context-Aware** Applications. In Proceedings of the. ACM SIGIR 2000, pages 382–384, Athens, ... a strongly **structured query language** is necessary when ... ir.dcs.gla.ac.uk/context/IRinContext_WorkshopNotes_SIGIR2004.pdf - [Similar pages](#)**[PDF] User Management in a Context-Aware Environment**File Format: PDF/Adobe Acrobat - [View as HTML](#)profiles are used to change the **user interface** or the behaviour of the program according to the ... **Structured Query Language**. SSL. Secure Sockets Layer ... asna.ewi.utwente.nl/.../Student%20assignments/completed%20bachelor%20and%20master%20assignments/donkers.pdf - [Similar pages](#)**[PDF] MobiDE Journal.dvi**File Format: PDF/Adobe Acrobat - [View as HTML](#)**structured query language** (SQL) API. Our system acts as an integrat- ... periences of Developing and Deploying a **Context-aware** Tourist Guide: The ... www.comp.lancs.ac.uk/~adrian/Papers/FridayDaviesWINET02.pdf - [Similar pages](#)**Programme 05 - Health Informatics New Zealand**The database can be inter-rogated using **Structured Query Language** (SQL) and provides a near-identical **user interface** (UI) on both a personal digital ... www.hinz.org.nz/content/view/32/107/ - 75k - [Cached](#) - [Similar pages](#)**[PDF] Sensor-based Pervasive Healthcare System: Design and implementation**

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the CSL provides a **structured query language** through which to access context data. ... focus of **context-aware** computing research as a **user-interface** tech- ... <https://www.cs.tcd.ie/publications/tech-reports/reports.06/TCD-CS-2006-59.pdf> - [Similar pages](#)**T spaces**In fact, by attaching a **Structured Query Language** (SQL) from end to T Spaces, ... intelligence: innovative **context-aware** services: usages and technologies, ... [portal.acm.org/citation.cfm?id=1012154&jmp=citings&coll=GUIDE&dl=GUIDE&CFID=15151515&... - \[Similar pages\]\(#\)](http://portal.acm.org/citation.cfm?id=1012154&jmp=citings&coll=GUIDE&dl=GUIDE&CFID=15151515&...)

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access to a **context-aware** environment, providing the process offering as a sort of ...

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context-aware expres- sions, 471. copying, 471. creating, 467-471 ... **Structured Query Language**. See SQL. STRUTS. InfoView action, calling, ...

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used OWL for modelling location ontology for **context aware** services. ... UIA (**user interface** agent) senses the user preferences and activates the domain ...

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A set of **Structured Query Language** (SQL) operators to select. feature geometries based on their ... employed to provide a spoken dialogue **user interface**. ...

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interactive functions, become **context aware** and get increas- ingly personalized. ...

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text and **context-aware** services and that in order to be able to process information built ...

a **user-interface** is defined by a screen description as well as ...

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in the form of **Structured Query Language** (SQL) queries. with joins, but such expressions very ... research interests include **context-aware** mobile comput- ...
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different lengths before the classification. In mobile device **context-aware**. applications, such as performing an action in the device **user interface** based ...www.vtt.fi/inf/pdf/publications/2005/P579.pdf - [Similar pages](#)**[PDF] Framework for Location Based Emergency Services in India**File Format: PDF/Adobe Acrobat - [View as HTML](#)**Structured Query Language**. TCS. Tata consultancy services ... OWL for modelling location ontology for **context aware** services. Their approach was to ...www.iirs-nrsa.gov.in/student_thesis/msc_geoinformatics/2003_2004/thesis_gauravsingh.pdf[Similar pages](#)**[PDF] Extending Enterprise Applications with Valorized Edge Servers**File Format: PDF/Adobe Acrobat - [View as HTML](#)It is evident that **context aware** applications which have to interpret ... **structured query language** (SQL) query and update statements to database servers. ...www.infosys.tuwien.ac.at/Staff/sd/DA/ErichLiebmann.pdf - [Similar pages](#)**[ICEIS 2005 International Conference on Enterprise Information ...**The **context-aware** messaging allowed us to decrease the messaging overhead ... This paper presents OpenDPI, an experimental **user-interface** toolkit designed ...www.iceis.org/iceis2005/abstracts_2005.htm - 946k - [Cached](#) - [Similar pages](#)**[PDF] Data Management for Augmented Reality Applications**File Format: PDF/Adobe Acrobat - [View as HTML](#)The result is far from a reusable **context aware** framework since it does not ... **Structured Query Language**. A almost intuitive formal language providing ...www.navab.in.tum.de/pub/toennis2003master/toennis2003master.pdf - [Similar pages](#)

Persistent dynamic payment service - Patent 20030126094

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US-PAT-NO: 6732088

DOCUMENT-IDENTIFIER: US 6732088 B1

TITLE: Collaborative searching by query induction

----- KWIC -----

Drawing Description Text - DRTX (4):

FIG. 3 is a block diagram of a data structure for a query data record as may be utilized in a database in the currently preferred embodiment of the present invention.

Drawing Description Text - DRTX (8):

FIGS. 7 and 8 are illustrations of a user interface for using the currently preferred embodiment of the present invention.

Drawing Description Text - DRTX (9):

FIG. 9 is an alternative embodiment of a tree structure for displaying related queries in a user interface as may be utilized in the currently preferred embodiment of the present invention.

Detailed Description Text - DETX (19):

A data structure describing an individual record in a query graph is illustrated with respect to FIG. 3. Referring to FIG. 3, a query record 301 is comprised of a query index 302 to identify the query, the query terms section 303 which lists the terms used in the query, a result section 304 which identifies the results associated with the query, a related query list 305 which identifies the related queries and the date the list was generated, and a query date 306 which indicates the date the query was last made. It should be noted that other information could be saved, e.g. all dates on which a particular query is made, or the number of times a particular query is made. Also, although not illustrated each related query will have an associated "count" which indicates the number of documents in common based on the "related query" criteria.

Detailed Description Text - DETX (20):

In the currently preferred embodiment, the results from a predetermined search engine is used to generate the query graph. So even if that predetermined search engine was not selected for retrieval, the query is generated for it. A query graph is implemented with a relational database, such as SQL. In the currently preferred embodiment, the database used is "mysql" (available for research purposes at the mysql Internet Web site), however, any such database product may be utilized.

Detailed Description Text - DETX (37):

The approach taken to minimize "stale" query records will depend on the

cost/benefit tradeoff of keeping the query records up to date.

Detailed Description Text - DETX (38):

User Interface

Detailed Description Text - DETX (39):

FIGS. 7-8 illustrate a user interface in the currently preferred embodiment. Such user interfaces would be presented on a computer display in a "window" by the Search Interface 101 of FIG. 1. Referring to FIG. 7, a user enters one or more query terms into query area 701. The query is submitted by "clicking" on the search button 702. Also indicated in FIG. 7 is a title 703 which indicates which Search Engine(s), the query is being directed to. Alternatively, checkboxes could be provided to indicate which search engine(s) the query is to be directed to. Referring now to FIG. 8, when the query results are returned, they are displayed in results area 801. The results area 801 would typically order the results based on their relatedness to the search terms. However, various other techniques could be used, depending on the number of search engines being queried. Further displayed is a related query area 802. When a user enters a query, s/he is presented with a set of related searches, queries 803. The related searches can be ordered by degree of relatedness, highest relatedness first.

Detailed Description Text - DETX (40):

In the currently preferred embodiment, the top 12 related queries, ordered by highest count in common first are presented. Also note that the related query area would typically be scrollable, or alternatively the entire user interface window may be scrollable, to enable the display and viewing of the entire list of related queries. After clicking on a related search, the user is then presented with a set of relevant documents for the related search, as well as a second set of related searches (two hops away from the original query in the graph). In this way, by clicking on a sequence of related searches, the user can follow a path through the query graph. The user can backtrack either using the "Back" button of the browser or by clicking on links provided by the interface for that purpose.

Detailed Description Text - DETX (41):

Finally, it should be noted that in the currently preferred embodiment, the user interface is implemented as a web page operating under the control of a web browser. Accordingly results lists are presented as lists of documents having underlying URLs, wherein the user may "click" on a document and then be presented with a new window containing the document located at that URL.

Detailed Description Text - DETX (42):

The user interface to the search engine could also be augmented to provide a graphical user interface indicating the relationships between the queries. This could be provided in the related query area 802 of FIG. 8, or as a separate window. Such a user interface is illustrated in FIG. 9. Referring to FIG. 9, the related queries are presented using a tree representation, with the original query 901 at its root and the various related queries as leaves 902.

Note that the leaves are displayed in a multi-level hierarchical fashion and are accessible using the well known point and click interface technique. The tree representation can be presented using a conventional tree viewer, or a more sophisticated visualization such as the hyperbolic tree visualization technology available from InXight, a Xerox XNE Company, of Palo Alto, Calif.).

Detailed Description Text - DETX (47):

Referring back to the example of the query mobile computing, it was observed that the query handheld computing conference is a first cousin, among numerous others. By first cousins it is meant that they are directly related. The exact queries will depend on what other users have actually submitted. The two queries both return "Mobile and Context-Aware Computing at UKC" in their top ten Web page results, and thus are connected to each other in the graph. If the term handheld rings a bell, the user might well follow the graph in this direction. Next, the user might be presented with handheld computing as a first cousin to handheld computing conference (thus, a second cousin to the original query) because both queries have in common the Web page "Press Release--BidCom Brings Handheld Computing to The Building Industry." The page the user is looking for is returned in the top ten documents for this query. Alternatively, the user might more rapidly find it by perusing the next set of related queries (now third order cousins to my original query), if some other user has been kind enough to have made the query HUC 1999. Through this process of examining related queries, the query terms and the associated results lists, the user may find the information they are searching for.

Detailed Description Text - DETX (48):

Overview of a Computer Controlled Display System in the Currently Preferred Embodiment of the Present Invention

Detailed Description Text - DETX (49):

A computer based system on which the currently preferred embodiment of the present invention may be implemented is described with reference to FIG. 10. As noted above, the present invention is implemented using software programming instructions written in shell, gawk and mysql (SQL) scripting languages for execution on a computer based system. The computer based system and associated operating instructions (e.g. software) embody circuitry used to implement the present invention. Referring to FIG. 10, the computer based system is comprised of a plurality of components coupled via a bus 1001. The bus 1001 may consist of a plurality of parallel buses (e.g. address, data and status buses) as well as a hierarchy of buses (e.g. a processor bus, a local bus and an I/O bus). In any event, the computer system is further comprised of a processor 1002 for executing instructions provided via bus 1001 from Internal memory 1003 (note that the Internal memory 1003 is typically a combination of Random Access and Read Only Memories). The processor 1002 will be used to perform various operations as illustrated by the steps of the flowcharts in FIGS. 4-6. Instructions for performing such operations are retrieved from Internal memory 1003. Such operations that would be performed by the processor 1002 would include the processing steps described in the flowcharts of FIG. 3 and the accompanying descriptions. The operations would typically be provided

in the form of coded instructions in a suitable programming language using well-known programming techniques. The processor 1002 and Internal memory 1003 may be discrete components or a single integrated device such as an Application Specification Integrated Circuit (ASIC) chip.

Detailed Description Text - DETX (50):

Also coupled to the bus 1001 are a keyboard 1004 for entering alphanumeric input, external storage 1005 for storing data, a cursor control device 1006 for manipulating a cursor, a display 1007 for displaying visual output and a network connection 1008. The keyboard 1004 would typically be a standard QWERTY keyboard but may also be telephone like keypad. The external storage 1005 may be fixed or removable magnetic or optical disk drive. The cursor control device 1006, e.g. a mouse or trackball, will typically have a button or switch associated with it to which the performance of certain functions can be programmed. The network connection 1008 provides means for attaching to a network, e.g. a Local Area Network (LAN) card or modem card with appropriate software. The network ultimately attached to is the Internet, but it may be through proxy servers or intermediary networks or dial-up services such as America On-Line.RTM., Prodigy.RTM. or CompuServe.RTM..

Claims Text - CLTX (5):

5. The information retrieval system as recited in claim 1 wherein said search interface further comprises means for displaying a user interface to a user, said user interface defining a first area for displaying query results and a second area for displaying related queries.

Claims Text - CLTX (6):

6. The information retrieval system as recited in claim 5 wherein said second area of said user interface displays said related queries in a tree-like structure.

Claims Text - CLTX (9):

9. The method as recited in claim 8 wherein said step of responsive to a user query, identifying related queries based on said graph of related queries performing the steps of: c1) submitting said user query to said graph generation search engine and obtaining the top N results for said user query; c2) storing said user query and corresponding top N results in said database; c3) comparing the user query results to the results of other queries in said database to create a related query list for said user query; c4) storing the related query list for said user query in said database; and c5) returning said related query list for display to said user.

Claims Text - CLTX (12):

12. The method as recited in claim 11 wherein prior to said step of presenting to said user the results and the related queries of said selected query, performing the steps of: submitting said selected related user query to said graph generation search engine and obtaining the top N results for said selected related user query; storing corresponding top N results of said selected related query in said database; comparing the selected related user

query results to the results of other queries in said database to create a related query list for said selected related user query; storing the related query list for said user selected related query in said database; and returning said related query list of said selected related query for display to said user.

DOCUMENT-IDENTIFIER: US 20030135498 A1

TITLE: Shortcut enabled, context aware information management

----- KWIC -----

Abstract Paragraph - ABTX (1):

A context aware, shortcut enabled system of presenting information through a user interface, implementing memory prostheses and context-oriented changes in meanings of shortcuts. Embodiments include selecting a context, receiving a shortcut entered through the user interface, the shortcut having a associated with it a shortcut field name set comprising one or more shortcut field names, and associating at least one context value to the context. Embodiments also include inferring, in dependence upon the context, a context table name and a context field name for a query, creating the query, selecting records from an information database by use of the query, whereby selected records are selected, and downloading the selected records to the client device for display.

Title - TTL (1):

Shortcut enabled, context aware information management

Summary of Invention Paragraph - BSTX (3):

[0002] The field of the invention is data processing or, more specifically, methods, systems, and products for shortcut enabled, context aware information management.

Summary of Invention Paragraph - BSTX (5):

[0004] The volume of information available on-line, especially over networks, public or private, is increasing dramatically. At the same time, perhaps because of the increased volume, the difficulty of accessing the information increases also. If a user can remember where information is located, then the user is required to negotiate difficult user interfaces to obtain information. Often, however, it is difficult to remember where particular information was previously found or is presently located, creating a need for additional searching through additional difficult user interfaces. There is increasing need, therefore, for ways of aiding memory in location of information and for ways of easing the use of interfaces.

Summary of Invention Paragraph - BSTX (7):

[0005] Exemplary embodiments of the invention typically include a context aware, shortcut enabled method of presenting information through a user interface, implemented in software operating upon an information management database server. In some embodiments, the information management database server is typically coupled for data communications (106) to a client device (108) and the client device typically includes automated computing machinery upon which is installed and an operative user interface.

Summary of Invention Paragraph - BSTX (8):

[0006] Exemplary embodiments of the invention typically include selecting a context, receiving a shortcut entered through the user interface, the shortcut having associated with it a shortcut field name set comprising one or more shortcut field names, and assigning at least one context value to the context. Exemplary embodiments typically include inferring, in dependence upon the context, a context table name and a context field name for a query, and creating the query. In typical embodiments, the query includes the context table name as a table for the query, the shortcut field names as the field names for the query, and the context field name and the context in a condition for the query. Exemplary embodiments typically include selecting records from an information database by use of the query, whereby selected records are selected and downloading the selected records to the client device for display.

Summary of Invention Paragraph - BSTX (9):

[0007] In exemplary embodiments of the invention, selecting a context typically includes selecting a default context. In some embodiments, selecting a context typically includes receiving a context from the client device, where the context is entered by a user through the user interface.

Summary of Invention Paragraph - BSTX (10):

[0008] Exemplary embodiments of the invention typically include repeating, in response to user input from the user interface, the steps of assigning a new context value to the context, inferring a context table name and a context field name, creating a query, selecting records, and downloading selected records. Exemplary embodiments typically include selecting a display form in dependence upon the shortcut value, where downloading the selected records to the client device for display includes downloading the selected records to the client device for display in the display form.

Brief Description of Drawings Paragraph - DRTX (4):

[0012] FIG. 3 sets forth example record structures for context definitions and shortcut definitions.

Detail Description Paragraph - DETX (3):

[0014] The present invention is described to a large extent in this specification in terms of methods for shortcut enabled, context aware information management. Persons skilled in the art, however, will recognize that any computer system that includes suitable programming means for operating in accordance with the disclosed methods also falls well within the scope of the present invention.

Detail Description Paragraph - DETX (8):

[0019] In this specification, the terms "field," "data element," and "attribute" are used as synonyms, referring to individual elements of digital data. Aggregates of data elements are referred to as "records" or "data structures." Aggregates of records are referred to as "files" or "tables."

Aggregates of files are referred to as "databases." Definitions of complex data structures that include member methods, functions, or software routines in addition to data elements are referred to as "classes." Instances of complex data structures are referred to as "objects" or "class objects."

Detail Description Paragraph - DETX (9):

[0020] "Browser" means a Web browser, a software application for locating and displaying Web pages. Typical browsers today can display various media including text, graphics, audio and video.

Detail Description Paragraph - DETX (15):

[0026] Turning now to FIG. 2, further embodiments are seen as context aware, shortcut enabled methods of presenting information through a user interface implemented in software operating upon an information management database server (102). In typical embodiments, the information management database server is coupled for data communications (106) to a client device (108), and the client device includes automated computing machinery upon which is installed an operative user interface (110). Embodiments typically include selecting (202) a context (204), and receiving a shortcut (210) entered through the user interface, the shortcut having a associated with it a shortcut field name set (212) comprising one or more shortcut field names.

Detail Description Paragraph - DETX (16):

[0027] Exemplary embodiments also include inferring (236), in dependence upon the context (204), a context table name (238) and a context field name (240) for a query, and creating (220) the query (222). In the context of the present example, "infer" (236) or "inferring" means finding in a context definition table (270) comprised of context definition records having, for example, the structure illustrated at reference (302) on FIG. 3, a record having a context field value (304 on FIG. 3) equal to the context (204 on FIG. 2) and reading from that found record a context table name (238) and at least one context field name (308, 310). The context definition records at reference (302) on FIG. 3 are illustrated for purposes of explanation with two fields for context field names (308, 310), but context definition records can have any useful number of context field names, not just one or two. The context definition records at reference (302) on FIG. 3 are illustrated for purposes of explanation with the fields for context field names (308, 310) included in the context definition records themselves, but in other embodiments, the context field names are stored in a separate table related 'one-to-many' through a foreign key to a table containing the context definition records.

Detail Description Paragraph - DETX (17):

[0028] In exemplary embodiments, the query includes the context table name as a table for the query (224), the shortcut field names as the field names for the query (226), and the context field name and the context in a condition for the query (228). Exemplary embodiments further include selecting (232) records from an information database by use of the query, whereby selected records (230) are selected, and downloading (234) the selected records (230) to the client device for display.

Detail Description Paragraph - DETX (18):

[0029] In exemplary embodiments of the kind illustrated in FIG. 2, selecting a context includes selecting a default context. In some exemplary embodiments, selecting a context includes receiving a context from the client device, where the context is entered (256) by a user (254) through the user interface (110). Other exemplary embodiments, typically includes receiving the context (204) from the client device, where the context is entered (256) by a user (254) through the user interface (110).

Detail Description Paragraph - DETX (19):

[0030] In exemplary embodiments of the kind illustrated in FIG. 2, the context typically includes an initial context value. Such embodiments typically include assigning (218), in response to user input through the user interface, a new context value to the context, and repeating, in response to user input from the user interface, the steps of assigning (218) a new context value, inferring (236) a context table name and a context field name, creating (220) a query, selecting (232) records, and downloading (234) selected records.

Detail Description Paragraph - DETX (20):

[0031] User input through a user interface is implemented in various alternative ways across embodiments. Some embodiments implement user input through touch sensitive areas on PDAs, the touch sensitive areas being the kind sometimes referred to as 'graffiti areas.' In such embodiments, a shortcut is often implemented as a small set of stylus motions on a touch sensitive area of a PDA, in which the small set of stylus motions represents a longer set of keystrokes. For example, one kind of embodiment utilizes such small sets of stylus motions, 'graffiti shortcuts,' to indicate represent a context (204) in situations where typing the context would require many more keystrokes or stylus motions than is required by the graffiti shortcut.

Detail Description Paragraph - DETX (21):

[0032] Other embodiments utilize "hot keys," single or short multiple keystroke combinations representing longer combinations of keystrokes. For example, one embodiment utilizes the left and right arrow keys to indicate changes of context, the right arrow key incrementing the context (204) to the next higher value and the left arrow key decrementing the context. Other embodiments utilize graphical user interface (GUI) objects to effect user input. For example, some embodiments utilize GUI slider bars to indicate changes of context (204).

Detail Description Paragraph - DETX (22):

[0033] From the user's point of view, utilizing shortcuts as abbreviated forms of user input effects efficient access to data from the information management database. If, for example, context (204) is set to "date," from which is inferred (236) a context table name (238) of "calendar" and a context field name (240) of "date," context (204) is set by default to a beginning date such as "today," a shortcut (210) entry indicates "locations," a shortcut field name set (212) includes fields describing locations such as address, city,

state, zip code, and a slider bar indicates changes in context, then a user has the experience of seeing as the user moves the slider bar, as a result of record selections (232) and downloads (230), a changing display of calendar event locations entered in the calendar on a sequence of dates. Moving the slider bar in the 'future' direction will rapidly or slowly, at a pace determined by the user's rate of motion of the bar, display a sequence of, for example, meeting or appointment locations, where the user has calendared meetings or appointments in future days, weeks, or months.

Detail Description Paragraph - DETX (23):

[0034] Moving the slider bar in a 'past' direction displays a sequence of, for example, meeting or appointment locations, where the user calendared meetings or appointments in past days, weeks, or months.

Detail Description Paragraph - DETX (24):

[0035] If, for example, the shortcut field name set (212) includes participant name fields, a user uses the embodiment described as, in effect, a memory prosthetic, a device to quickly remind the user where meetings were held in recent weeks, for example, and who attended them, or where meetings are planned for future weeks and who is invited to attend them. The memory prosthetic benefit is achieved because of the extreme economy of keystrokes or interface events needed to access a sequence of related data records from an information management database.

Detail Description Paragraph - DETX (25):

[0036] Exemplary embodiments of the invention further include selecting (260) a display form (258) in dependence upon the shortcut value (210). That is, in typical embodiments, as shown in FIG. 2, downloading (234) selected records (230) to a client device (108) for display includes downloading (234) the selected records to the client device for display in a display form (258). In many embodiments, the display forms (258) are extracted from the information management database (104) and then downloaded to a client device to aid in display of selected records. Display forms include, for example, scrolling displays of rows of columns of fields and detailed views of fields from a single record or aggregations of fields from multiple related records. Other display forms will occur to those of skill in the art, and the use of any such display form is well within the scope of the present invention.

Detail Description Paragraph - DETX (26):

[0037] Selecting (260) display forms is accomplished in dependence upon shortcut value (210). That is, if, for example, in a "time" context, the shortcut value indicates "location," then typically in such embodiments a display form is selected that will appropriately support the display of fields indicating locations, such as, for example, forms containing display arrangements for street addresses, post office boxes, suite numbers, floor numbers, apartment numbers, cities, states, mail codes, country codes, and so on. If, for another example, in a "location" context, the shortcut value indicates "date," then typically in such embodiments a display form is selected to appropriately support the display of fields from calendar entries, such as,

for example, date and beginning time and ending time of a scheduled meeting or appointment, names and affiliations of attendees or invitees, and so on.

Detail Description Paragraph - DETX (31):

[0042] In this example embodiment, the information management database server includes a context definition table (270 on FIG. 2) comprising context definition records having the structure illustrated at reference (302) in FIG. 3. In this example, a user has indicated through a client device user interface that the current context is "Time." The exemplary embodiment infers (reference 236 on FIG. 2) by reference to the context definition table (270) that the context table name (238 on FIG. 3) associated with the "time" context is "Calendar." That is, the step of inferring (236) includes finding in the context definition table (270) a context definition record having a context equal to "Time" (350 on FIG. 3). The inference process in this example also reads (or "infers") from the same context definition table record (350) that the context field name (240) is "Appt_Begin_Time," a name of a field or column in the Calendar table representing the beginning time of appointments registered in the Calendar table.

Detail Description Paragraph - DETX (32):

[0043] In the present example, a default relational operator (312), "=", is taken also from the context definition record, and a default context (314), "now," meaning computer system clock time rounded to the nearest half hour, is also taken from the context definition record. In this example, "now" effectively means 10:00 a.m. local time at the location of the information database management server. In other embodiments, "now" is implemented to represent the present date and time at the location of a client device (108 on FIG. 2). In other embodiments, "now" is implemented to mean a data and time identified in a calendaring system located on a client device, so that the default beginning date and time for scanning calendar records is taken from a pointer on the client device. In all such exemplary embodiments, "now" represents a default starting point for scanning particular records in an information table in an information management database. Person of skill in the art will think of other implementation for a default starting pointing, all such implementations being well within the scope of the present invention.

Detail Description Paragraph - DETX (33):

[0044] In this example, the user also indicates through the user interface a shortcut having a shortcut identifier or shortcut name "location," which, in combination with the context set to "time," will effectively allow the user to ask very efficiently across a large number of locations, "Where was I when?" As shown in the example Shortcut Definition Record in FIG. 3, the shortcut "location" has associated with it a field name set (212) identified by shortcut field names of fields representing a street address, city, state, and two attendees. The create function (reference 220 on FIG. 2) of this example embodiment uses the shortcut field names from a Shortcut Definition Record in the shortcut definition table (270) as the shortcut fields in the query template described above. By inserting the shortcut fields, the context table name, the context field name, the relational operator, and the context into the

query template, the create function (220) creates a query of the following form:

Detail Description Paragraph - DETX (37):

[0048] In this example, the granularity of context changes is set in a parameter setup record (not shown) as a half-hour. The user's operation of a GUI slider bar or hot key in the user interface, therefore, will advance or retard the context by one half-hour for each change in position of the slider or each press of a hot key. Each such change or keypress results in creation of a new query, the same as the previous query except with a different context, that is, a new context one half-hour later or earlier than the previous one. Each such new query is used to select a new record for download and display on the user interface. In this way, the user is enabled to scroll very conveniently through a large amount of data, much more data than is stored on portable or mobile client devices such as PDAs.

Detail Description Paragraph - DETX (39):

[0050] Additional examples illustrate the effect of a change in context on the meaning of a shortcut. In the example shortcut definitions records (316) in FIG. 4, there are two shortcuts named "location," one for "time" contexts and one for "contacts" contexts. In this exemplary embodiment, when the context is set to "time" and the shortcut entered by the user is the shortcut for "location," the shortcut fields are the fields storing date, time, street address, city, and state of an appointment or meeting; the context table name is "Calendar," the context field name is "Street Address;" the relational operator is "="; and the context is the first calendar entry in the calendar file. With these inputs, the create function (220) creates a query of the following exemplary form:

Detail Description Paragraph - DETX (42):

[0053] WHERE Street=Street Value From First Record In Calendar File

Detail Description Paragraph - DETX (46):

[0057] WHERE LastName=LastName Value From First Record In Address_Book

Detail Description Paragraph - DETX (47):

[0058] These last two examples show that the semantics of a shortcut change with changes in context. In the embodiment illustrated in FIG. 3, for example, the shortcut representing "location," changed meaning when the context changed from "time" to "contacts." In the user interface, the shortcut is implemented as a short keystroke combination such as, for example, Alt-L. Alternatively, the shortcut is implemented in the user interface as a custom graffiti shortcut, a few stylus strokes representing "location." The shortcut is implemented in the user interface across embodiments in many ways that will occur to those of skill in the art, all such ways being well within the scope of the present invention.

Detail Description Paragraph - DETX (48):

[0059] In the present example, the meaning of the shortcut for "location"

changed from context to context. In the "time" context, the semantics for the "location" shortcut are effectively, "Display time and places where the user has or had appointments or meetings." In the "contacts" context, for the exact same shortcut, "location," the semantics changed to, "Display names and addresses of persons known to the user." Thus the meaning of shortcuts changes with context, and the exact same shortcut in various embodiments has many meanings depending upon the number of contexts in which the shortcut is defined.

Detail Description Paragraph - DETX (49):

[0060] In the example of FIG. 4, multiple shortcut records are defined for a context by inclusion of a context field (318) in the shortcut definition record structure (316). Such an arrangement effectively uses the context field as a foreign key effecting a one-to-many relationship between the shortcut records (316) and the context records (302). On the other hand, in the present example, multiple context field names (308, 310) are included within the context record structure itself, although in other embodiments, for example, multiple context field names also are embodied in a separate table or tables related to context records through a foreign key. Similarly, multiple shortcut field names (320, 322, 324, 326, 328) are included within the shortcut definition record structure (316) in the present example, although in other embodiments, for example, multiple shortcut field names are embodied in a separate table related to shortcut definition records through a foreign key. This paragraph discusses several database structures for implementation of context definitions and shortcut definitions, and many other database structures for context definitions and shortcut definitions will occur to those of skill in the art, all such structures being well within the scope of the present invention.

Detail Description Paragraph - DETX (51):

[0062] The example query form discussed above utilizes a format similar to the well known format of the Structured Query Language or "SQL." There is no limitation in the present invention to SQL. In fact, any query format acceptable to a subject information management database is acceptable within the scope of the present invention.

Claims Text - CLTX (2):

1. A context aware, shortcut enabled method of presenting information through a user interface on a client device, the method comprising the steps of: selecting a context; receiving a shortcut entered through the user interface, the shortcut having associated with it a shortcut field name set comprising one or more shortcut field names; inferring from a context definition table, in dependence upon the context, a context table name and a context field name; selecting information records from an information database in dependence upon the context, the context table name, the shortcut field names, and the context field name; and displaying selected records through the user interface on the client device.

Claims Text - CLTX (3):

2. The method of claim 1 wherein selecting records further comprises creating a query, wherein the query includes: the context table name as a table for the query; the shortcut fields names as field names for the query; and the context and the context field name in a condition for the query.

Claims Text - CLTX (5):

4. The method of claim 1 wherein selecting a context further comprises receiving a context from the client device, the context entered by a user through the user interface.

Claims Text - CLTX (6):

5. The method of claim 1 wherein the context has an initial context value, and the method comprises the further steps of: assigning, in response to user input through the user interface, a new context value to the context; and repeating, in response to user input from the user interface, the steps of assigning a new context value to the context, inferring a context table name and a context field name, selecting records, and downloading selected records.

Claims Text - CLTX (7):

6. The method of claim 1 further comprising selecting a display form in dependence upon the shortcut value, wherein displaying selected records through the user interface on the client device further comprises downloading the selected records to the client device for display in the display form.

Claims Text - CLTX (8):

7. A context aware, shortcut enabled system of presenting information through a user interface on a client device, the system comprising: means for selecting a context; means for receiving a shortcut entered through the user interface, the shortcut having a associated with it a shortcut field name set comprising one or more shortcut field names; means for inferring from a context definition table, in dependence upon the context, a context table name and a context field name; means for selecting information records from an information database in dependence upon the context, the context table name, the shortcut fields names, and the context field name; and means for displaying selected records through the user interface on the client device.

Claims Text - CLTX (9):

8. The system of claim 7 wherein means for selecting records further comprises means for creating a query, wherein the query includes: the context table name as a table for the query; the shortcut fields names as field names for the query; and the context and the context field name in a condition for the query.

Claims Text - CLTX (11):

10. The system of claim 7 wherein means for selecting a context further comprises means for receiving a context from the client device, the context entered by a user through the user interface.

Claims Text - CLTX (12):

11. The system of claim 7 wherein the context has an initial context value, and the system comprises: means for assigning, in response to user input through the user interface, a new context value to the context; and means for repeating, in response to user input from the user interface, the steps of assigning a new context value to the context, inferring a context table name and a context field name, selecting records, and downloading selected records.

Claims Text - CLTX (13):

12. The system of claim 7 further comprising means for selecting a display form in dependence upon the shortcut value, wherein means for displaying selected records through the user interface on the client device further comprises means for downloading the selected records to the client device for display in the display form.

Claims Text - CLTX (14):

13. A context aware, shortcut enabled computer program product of presenting information through a user interface on a client device, the computer program product comprising: a recording medium; means, recorded on the recording medium, for selecting a context; means, recorded on the recording medium, for receiving a shortcut entered through the user interface, the shortcut having a associated with it a shortcut field name set comprising one or more shortcut field names; means, recorded on the recording medium, for inferring from a context definition table, in dependence upon the context, a context table name and a context field name; means, recorded on the recording medium, for selecting information records from an information database in dependence upon the context, the context table name, the shortcut fields names, and the context field name; and means, recorded on the recording medium, for displaying selected records through the user interface on the client device.

Claims Text - CLTX (15):

14. The computer program product of claim 13 wherein means, recorded on the recording medium, for selecting records further comprises means, recorded on the recording medium, for creating a query, wherein the query includes: the context table name as a table for the query; the shortcut fields names as field names for the query, and the context and the context field name in a condition for the query.

Claims Text - CLTX (17):

16. The computer program product of claim 13 wherein means, recorded on the recording medium, for selecting a context further comprises means, recorded on the recording medium, for receiving a context from the client device, the context entered by a user through the user interface.

Claims Text - CLTX (18):

17. The computer program product of claim 13 wherein the context has an initial context value, and the computer program product comprises: means, recorded on the recording medium, for assigning, in response to user input through the user interface, a new context value to the context; and means, recorded on the recording medium, for repeating, in response to user input from

the user interface, the steps of assigning a new context value to the context, inferring a context table name and a context field name, selecting records, and downloading selected records.

Claims Text - CLTX (19):

18. The computer program product of claim 13 further comprising means, recorded on the recording medium, for selecting a display form in dependence upon the shortcut value, wherein means, recorded on the recording medium, for displaying selected records through the user interface on the client device further comprises means, recorded on the recording medium, for downloading the selected records to the client device for display in the display form.

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1 [Supporting service discovery, querying and interaction in ubiquitous computing environments](#) 

Adrian Friday, Nigel Davies, Nat Wallbank, Elaine Catterall, Stephen Pink
 November 2004 **Wireless Networks**, Volume 10 Issue 6.

Publisher: Kluwer Academic Publishers

Full text available:  [pdf\(209.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we contend that ubiquitous computing environments will be highly heterogeneous, service rich domains. Moreover, future applications will consequently be required to interact with multiple, specialised service location and interaction protocols simultaneously. We argue that existing service discovery techniques do not provide sufficient support to address the challenges of building applications targeted to these emerging environments.

This paper makes a number of contribu ...

Keywords: distributed systems, middleware, mobile and ubiquitous computing, service discovery, service interaction

2 [Software engineering II: A relational database model for representation of formal](#) 

 [specifications](#)

Robert Leithiser

March 2006 **Proceedings of the 44th annual Southeast regional conference ACM-SE 44**

Publisher: ACM Press

Full text available:  [pdf\(255.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Literature has established the effectiveness of formal specifications for modeling specifications for computer system properties as well as for verifying program correctness. However, tools that can enable the typical commercial software developer to utilize formal methods are not in widespread use. A possible reason for this is that commercial tools can more easily be produced if industry-standard storage mechanisms such as relational database management systems (RDBMS) can be leveraged as repo ...

Keywords: RDBMS, Zed, formal methods, formal specification, relational database management system, relational state, state transition

3 Mobile services and technology track: SmartRestaurant: mobile payments in context-aware environment 

 Janne Lukkari, Jani Korhonen, Timo Ojala
March 2004 **Proceedings of the 6th international conference on Electronic commerce ICEC '04**

Publisher: ACM Press

Full text available:  [pdf\(408.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Mobility, context-awareness and payment combined provide a customer with a completely new setting of consuming services at any time and any place. We introduce SmartRestaurant service, which allows customers to use mobile devices for ordering and paying lunches from a nearby campus restaurant beforehand. Further, SmartRestaurant provides the restaurant with means of adjusting the sales with production capacity and prior knowledge of upcoming orders. We present a user evaluation of the system in ...

Keywords: B2C, context-aware, indirect mCommerce, mobile payment

4 Advanced SQL modeling in RDBMS 

 Andrew Witkowski, Srikanth Bellamkonda, Tolga Bozkaya, Nathan Folkert, Abhinav Gupta, John Haydu, Lei Sheng, Sankar Subramanian
March 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(279.06 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Commercial relational database systems lack support for complex business modeling. ANSI SQL cannot treat relations as multidimensional arrays and define multiple, interrelated formulas over them, operations which are needed for business modeling. Relational OLAP (ROLAP) applications have to perform such tasks using joins, SQL Window Functions, complex CASE expressions, and the GROUP BY operator simulating the pivot operation. The designated place in SQL for calculations is the SELECT clause, whi ...

Keywords: Excel, OLAP, analytic computations, spreadsheet

5 Improving co-operative working in the utility industry through mobile context aware geographic information systems 

 Martin Hope, Tom Chrisp, Nigel Linge
November 2000 **Proceedings of the 8th ACM international symposium on Advances in geographic information systems GIS '00**

Publisher: ACM Press

Full text available:  [pdf\(583.01 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper presents the development of a mobile context aware geographic information system (G.I.S.) based upon IEEE 802.11 compliant standards and equipment, distributed database systems, and modular software components. Delivered across a high bandwidth wireless intranet, and developed from standard "off the shelf" products, the system presents a unique integration of existing technologies that when applied, could be beneficial to a number of industries that rely on remote acces ...

Keywords: context aware, intranet G.I.S., mobile G.I.S.

6 Mobility support and location awareness: Developing spatially-aware content

 management systems for dynamic, location-specific information in mobile environments 

Harsha Tummala, Joel Jones

September 2005 **Proceedings of the 3rd ACM international workshop on Wireless mobile applications and services on WLAN hotspots WMASH '05**

Publisher: ACM Press

Full text available:  [pdf\(1.06 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Current location-aware information systems lack an effective method of maintaining and updating dynamic, location-specific content. We have developed a design for representing location-specific content that balances flexibility and comprehensibility. We have developed a web-based content management system that implements this design. The system provides an easy-to-use interface to tie any form of media-such as text, pictures, audio, or video-to a location. This work is directly applicable to vari ...

Keywords: content management, context-aware services, location-aware applications, mobile computing, user-driven information systems

7 Computer education II: Aligning learning objectives with service-learning outcomes in a mobile computing application 

 Rebecca Bruce, Susan Reiser

March 2006 **Proceedings of the 44th annual Southeast regional conference ACM-SE 44**

Publisher: ACM Press

Full text available:  [pdf\(253.74 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We propose the development of a mobile, location-aware tour of the Bonsai Exhibition Garden of the North Carolina Arboretum. The tour will be a web-based, customizable, multimedia presentation on handheld Personal Digital Assistants. The complete tour, including all presentation materials and system installation, will be developed via a series of three classes at the University of North Carolina at Asheville. These classes, Database Management Systems, Human Computer Interface, and Systems Integ ...

Keywords: guided tour, location-aware computing, mobile computing, project-based coursework, service learning

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Improving co-operative working in the utility industry through mobile context aware geographic information systems

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 Washington, D.C., United States
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 ISBN:1-58113-319-7

Authors [Martin Hope](#) Centre for Network and Telecommunications Research, University of Salford (UK)

[Tom Chrissp](#) ARC Research & Consultancy Ltd., 59 Thorsby Rd, Sheffield (UK)

[Nigel Linge](#) Centre for Network and Telecommunications Research, University of Salford (UK)

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Publisher ACM Press New York, NY, USA

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↑ ABSTRACT

This paper presents the development of a mobile context aware geographic information system (G.I.S.) based upon IEEE 802.11 compliant standards and equipment, distributed database systems, and modular software components. Delivered across a high bandwidth wireless intranet, and developed from standard "off the shelf" products, the system presents a unique integration of existing technologies that when applied, could be beneficial to a number of industries that rely on remote access to distributed geo-spatial data. Results from extensive field trials of the system in Manchester (UK) are then presented, in terms of the potential impact of the system on both the co-operative and the isolated working practices of field engineers in the Utility Industry.

↑ INDEX TERMS

Primary Classification:

[H. Information Systems](#)

↳ [H.2 DATABASE MANAGEMENT](#)

↳ [H.2.8 Database applications](#)

↳ [Subjects: Spatial databases and GIS](#)

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Result page: [previous](#) [1](#) [2](#) [3](#) [4](#) [next](#)Relevance scale **21** [Location history in a low-cost context awareness environment](#) 

Teddy Mantoro, Chris Johnson

January 2003 **Proceedings of the Australasian information security workshop conference on ACSW frontiers 2003 - Volume 21 ACSW Frontiers '03****Publisher:** Australian Computer Society, Inc.Full text available:  [pdf\(209.27 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Location awareness is a crucial part of the context-awareness mechanism for ubicomputing. This paper explores how useful is the location awareness history for an office based low-cost context-awareness environment. Capturing location awareness data into a relational database is simple and feasible in office environment. We use extended SQL to access the location awareness history database to provide direct support for speech commands. The mechanism improves flexibility for developing context aware ...

Keywords: context aware computing, intelligent environment, location awareness, location history, ubicomputing

22 [Expressive power of an algebra for data mining](#)  Toon Calders, Laks V. S. Lakshmanan, Raymond T. Ng, Jan ParedaensDecember 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 4**Publisher:** ACM PressFull text available:  [pdf\(392.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The relational data model has simple and clear foundations on which significant theoretical and systems research has flourished. By contrast, most research on data mining has focused on algorithmic issues. A major open question is: what's an appropriate foundation for data mining, which can accommodate disparate mining tasks? We address this problem by presenting a database model and an algebra for data mining. The database model is based on the 3W-model introduced by Johnson et al. [2000] ...

Keywords: Algebra, data mining, expressive power

23 [Research session: new applications: The SphereSearch engine for unified ranked retrieval of heterogeneous XML and web documents](#) 

Jens Graupmann, Ralf Schenkel, Gerhard Weikum

August 2005 **Proceedings of the 31st international conference on Very large data**

bases VLDB '05**Publisher:** VLDB EndowmentFull text available:  [pdf\(381.86 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents the novel SphereSearch Engine that provides unified ranked retrieval on heterogeneous XML and Web data. Its search capabilities include vague structure conditions, text content conditions, and relevance ranking based on IR statistics and statistically quantified ontological relationships. Web pages in HTML or PDF are automatically converted into XML format, with the option of generating semantic tags by means of linguistic annotation tools. For Web data the XML-oriented query ...

24 Software engineering II: A relational database model for representation of formal  **specifications****Publisher:** Robert LeithiserMarch 2006 **Proceedings of the 44th annual Southeast regional conference ACM-SE**
44**Publisher:** ACM PressFull text available:  [pdf\(255.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Literature has established the effectiveness of formal specifications for modeling specifications for computer system properties as well as for verifying program correctness. However, tools that can enable the typical commercial software developer to utilize formal methods are not in widespread use. A possible reason for this is that commercial tools can more easily be produced if industry-standard storage mechanisms such as relational database management systems (RDBMS) can be leveraged as repo ...

Keywords: RDBMS, Zed, formal methods, formal specification, relational database management system, relational state, state transition

25 On the complexity of nonrecursive XQuery and functional query languages on  **complex values****Publisher:** Christoph KochDecember 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 4**Publisher:** ACM PressFull text available:  [pdf\(700.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article studies the complexity of evaluating functional query languages for complex values such as monad algebra and the recursion-free fragment of XQuery. We show that monad algebra, with equality restricted to atomic values, is complete for the class $TA[2^{O(n)}, O(n)]$ of problems solvable in linear exponential time with a linear number of alternations if the query is assumed to be part of the input. The monotone fragment of monad algebra with atomic va ...

Keywords: Complex values, XML, XQuery, complexity, conservativity, expressiveness, monad algebra, nested-relational algebra

26 Special issue on Mobile Data Management: Reactive maintenance of continuous  **queries****Publisher:** Goce Trajcevski, Peter ScheuermannJuly 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 3**Publisher:** ACM PressFull text available:  [pdf\(351.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This work addresses the problem of maintaining the consistency of the answers to continuous queries which are posed by the users of the Moving Objects Databases (MOD). Assuming that the motion of the object is represented by a trajectory, we focus on the effect that the modifications to the trajectory data can have on the queries answer-set. In case a mobile user enters a road section in which an accident has occurred, which was not anticipated in the "expected" traffic behavior, not only his ...

27 Research centers: Data management research at the Knowledge and Database

 **Systems Lab: (NTU Athens)**

Timos Sellis, Yannis Vassiliou

June 2006 **ACM SIGMOD Record**, Volume 35 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(167.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The Knowledge and Database Systems Lab (KDBSL) of the Electrical and Computer Engineering Dept. in the National Technical University of Athens was founded in 1992 by Prof. Timos Sellis and Prof. Yannis Vassiliou. Its activities involve theoretical and applied research in the area of Databases and Information Systems. The lab employs three postdoc researchers (Dr Theodore Dalamagas, Dr Alkis Simitsis, Dr Yannis Stavrakas), several PhD students and many graduate students. It has been involved in m ...

28 Agents to assist in finding help

 **Adriana Vivacqua, Henry Lieberman**

April 2000 **Proceedings of the SIGCHI conference on Human factors in computing systems CHI '00**

Publisher: ACM Press

Full text available:  [pdf\(1.35 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

When a novice needs help, often the best solution is to find a human expert who is capable of answering the novice's questions. But often, novices have difficulty characterizing their own questions and expertise and finding appropriate experts. Previous attempts to assist expertise location have provided matchmaking services, but leave the task of classifying knowledge and queries to be performed manually by the participants. We introduce *Expert Finder*, an agent that automatically clas ...

Keywords: Java, agents, expertise location, help systems, matchmaking

29 Research centers: The Indiana Center for Database Systems at Purdue University

 **Mourad Ouzzani, Walid G. Aref, Elisa Bertino, Ann Christine Catlin, Christopher W. Clifton, Wing-Kai Hon, Ahmed K. Elmagarmid, Arif Ghafoor, Susanne E. Hambrusch, Sunil Prabhakar, Jeffrey S. Vitter, Xiang Zhang**

June 2005 **ACM SIGMOD Record**, Volume 34 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(161.46 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The Indiana Center for Database Systems (ICDS) at Purdue University has embarked in an ambitious endeavor to become a premiere world-class database research center. This goal is substantiated by the diversity of its research topics, the large and diverse funding base, and the steady publication trend in top conferences and journals. ICDS was founded with an initial grant from the State of Indiana Corporation of Science and Technology in 1990. Since then it has grown to now have 9 faculty members ...

30

Mobile services and technology track: SmartRestaurant: mobile payments in context-aware environment

Janne Lukkari, Jani Korhonen, Timo Ojala
 March 2004 **Proceedings of the 6th international conference on Electronic commerce ICEC '04**
 Publisher: ACM Press
 Full text available: [pdf\(408.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Mobility, context-awareness and payment combined provide a customer with a completely new setting of consuming services at any time and any place. We introduce SmartRestaurant service, which allows customers to use mobile devices for ordering and paying lunches from a nearby campus restaurant beforehand. Further, SmartRestaurant provides the restaurant with means of adjusting the sales with production capacity and prior knowledge of upcoming orders. We present a user evaluation of the system in ...

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31 Improving co-operative working in the utility industry through mobile context aware geographic information systems

Martin Hope, Tom Chriss, Nigel Linge
 November 2000 **Proceedings of the 8th ACM international symposium on Advances in geographic information systems GIS '00**

Publisher: ACM Press

Full text available: [pdf\(583.01 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper presents the development of a mobile context aware geographic information system (G.I.S.) based upon IEEE 802.11 compliant standards and equipment, distributed database systems, and modular software components. Delivered across a high bandwidth wireless intranet, and developed from standard "off the shelf" products, the system presents a unique integration of existing technologies that when applied, could be beneficial to a number of industries that rely on remote acces ...

Keywords: context aware, intranet G.I.S., mobile G.I.S.

32 Research papers: stream aggregation: Semantics and evaluation techniques for window aggregates in data streams

Jin Li, David Maier, Kristin Tufte, Vassilis Papadimos, Peter A. Tucker
 June 2005 **Proceedings of the 2005 ACM SIGMOD international conference on Management of data SIGMOD '05**

Publisher: ACM Press

Full text available: [pdf\(564.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

A windowed query operator breaks a data stream into possibly overlapping subsets of data and computes a result over each. Many stream systems can evaluate window aggregate queries. However, current stream systems suffer from a lack of an explicit definition of window semantics. As a result, their implementations unnecessarily confuse window definition with physical stream properties. This confusion complicates the stream system, and even worse, can hurt performance both in terms of memory usage ...

33 Adaptation to users: A goal-oriented interface to consumer electronics using planning and commonsense reasoning

Henry Lieberman, José Espinosa
 January 2006 **Proceedings of the 11th international conference on Intelligent user interfaces IUI '06**

Publisher: ACM Press

Full text available: [pdf\(427.81 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We are reaching a crisis with design of user interfaces for consumer electronics. Flashing 12:00 time indicators, push-and-hold buttons, and interminable modes and menus are all symptoms of trying to maintain a one-to-one correspondence between functions and physical controls, which becomes hopeless as the number of capabilities of devices grows. We propose instead to orient interfaces around the goals that users have for the use of devices. We present Roadie, a user interface agent that provides ...

Keywords: commonsense reasoning, consumer electronics, goal-oriented interfaces, planning

34 Ubiquitous computing (UC): Towards system software for physical space applications 

 Kaori Fujinami, Tatsuo Nakajima

March 2005 **Proceedings of the 2005 ACM symposium on Applied computing SAC '05**

Publisher: ACM Press

Full text available:  pdf(370.30 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In ubiquitous computing era, the notion of context-awareness will play an important role. An application should be aware of its operating context for supporting and enriching human activities. Such contextual information is required to be captured as seamlessly as possible through interaction between users and surrounding environments. This leads to the need for dealing with a wide variety of contextual information from a physical world. In this paper, we propose a conceptual framework, *Bazaar* ...

35 Information retrieval models: Detecting similar documents using salient terms 

 James W. Cooper, Anni R. Coden, Eric W. Brown

November 2002 **Proceedings of the eleventh international conference on Information and knowledge management CIKM '02**

Publisher: ACM Press

Full text available:  pdf(180.68 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe a system for rapidly determining document similarity among a set of documents obtained from an information retrieval (IR) system. We obtain a ranked list of the most important terms in each document using a rapid phrase recognizer system. We store these in a database and compute document similarity using a simple database query. If the number of terms found to not be contained in both documents is less than some predetermined threshold compared to the total number of terms in the doc ...

Keywords: databases, document similarity, duplicate documents, shingles, text mining

36 Context-aware Web Information Systems 

Aleksander Binemann-Zdanowicz, Roland Kaschek, Klaus-Dieter Schewe, Bernhard Thalheim January 2004 **Proceedings of the first Asian-Pacific conference on Conceptual modelling - Volume 31 APCCM '04**

Publisher: Australian Computer Society, Inc.

Full text available:  pdf(413.81 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Apart from completeness usability, performance and maintainability are the key quality aspects for Web information systems. Considering usability as key implies taking usage processes into account right from the beginning of systems development. Context-awareness appears as a promising idea for increasing usability of Web Information Systems. In the present paper we propose an approach to context-awareness of Web Information Systems that systematically distinguishes among the various important k ...

Keywords: SiteLang, Web Information Systems, Web services, context-aware information systems, media objects

37 Mobility support and location awareness: Developing spatially-aware content management systems for dynamic, location-specific information in mobile environments

Harsha Tummala, Joel Jones

September 2005 **Proceedings of the 3rd ACM international workshop on Wireless mobile applications and services on WLAN hotspots WMASH '05**

Publisher: ACM Press

Full text available:  pdf(1.06 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Current location-aware information systems lack an effective method of maintaining and updating dynamic, location-specific content. We have developed a design for representing location-specific content that balances flexibility and comprehensibility. We have developed a web-based content management system that implements this design. The system provides an easy-to-use interface to tie any form of media—such as text, pictures, audio, or video—to a location. This work is directly applicable to vari ...

Keywords: content management, context-aware services, location-aware applications, mobile computing, user-driven information systems

38 A model of OASIS role-based access control and its support for active security

Jean Bacon, Ken Moody, Walt Yao

November 2002 **ACM Transactions on Information and System Security (TISSEC)**, Volume 5 Issue 4

Publisher: ACM Press

Full text available:  pdf(352.06 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

OASIS is a role-based access control architecture for achieving secure interoperation of services in an open, distributed environment. The aim of OASIS is to allow autonomous management domains to specify their own access control policies and to interoperate subject to service level agreements (SLAs). Services define roles and implement formally specified policy to control role activation and service use; users must present the required credentials, in an appropriate context, in order to activat ...

Keywords: Certificates, OASIS, RBAC, distributed systems, policy, role-based access control, service-level agreements

39 XSKETCH synopses for XML data graphs

Neoklis Polyzotis, Minos Garofalakis

September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3

Publisher: ACM Press

Full text available:  pdf(885.57 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Effective support for XML query languages is becoming increasingly important with the emergence of new applications that access large volumes of XML data. All existing proposals for querying XML (e.g., XQuery) rely on a pattern-specification language that allows (1) *path navigation and branching through the label structure* of the XML data graph, and (2) *predicates on the values* of specific path/branch nodes, in order to reach the desired data elements. Clearly, optimizing such quer ...

Keywords: XML, approximate query processing, data synopses, path expressions

40 Multicast: SensorBus: a middleware model for wireless sensor networks

 Admilson R. L. Ribeiro, Fabio C. S. Silva, Lillian C. Freitas, João Crisóstomo Costa, Carlos R. Francês

October 2005 **Proceedings of the 3rd international IFIP/ACM Latin American conference on Networking LANC '05**

Publisher: ACM Press

Full text available:  [pdf\(124.39 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

The use of middleware eases the development of distributed applications by abstracting the intricacies (communication and coordination among software components) of the distributed network environment. In wireless sensor networks, this is even trickier because of their specific issues such as addressing, mobility, number of sensors and energy-limited nodes. This paper describes SensorBus, a message-oriented middleware (MOM) model for wireless sensor networks based on the publish-subscribe paradi ...

Keywords: middleware, publish-subscribe paradigm, wireless sensor networks

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The anatomy of a context-aware application

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Authors [Andy Harter](#) AT&T Laboratories Cambridge, 24a Trumpington Street, Cambridge CB2 1QA, United Kingdom
[Andy Hopper](#) AT&T Laboratories Cambridge, 24a Trumpington Street, Cambridge CB2 1QA, United Kingdom and Laboratory for Communications Engineering, Cambridge University Department of Engineering, Trumpington Street, Cambridge CB2 1FZ, United Kingdom
[Pete Steggles](#) AT&T Laboratories Cambridge, 24a Trumpington Street, Cambridge CB2 1QA, United Kingdom
[Andy Ward](#) AT&T Laboratories Cambridge, 24a Trumpington Street, Cambridge CB2 1QA, United Kingdom
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1 Getting, I. The Global Positioning System. *IEEE Spectrum*, Vol. 30, No. 12, December 1993. pp. 36-47

2 Hatter, A., Hopper, A. A Distributed Location System for the Active Office. *IEEE Network*, Special Issue on Distributed Systems for Telecommunications, Vol. 8, No. 1, January 1994. pp. 62-70

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1 [A survey of middleware for sensor networks: state-of-the-art and future directions](#) 
 Karen Henricksen, Ricky Robinson
 November 2006 **Proceedings of the international workshop on Middleware for sensor networks MidSens '06**
 Publisher: ACM Press
 Full text available:  [pdf\(295.41 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In future computing environments, networked sensors will play an increasingly important role in mediating between the physical and virtual worlds. However, programming sensor networks, and the applications that depend on the data they produce, is extremely challenging. The need for suitable middleware to address this problem is evident. In the last few years, various middleware solutions for sensor networks have emerged. These differ in terms of their models for querying and data aggregation, an ...

Keywords: context-aware systems, middleware, sensor networks

2 [Data Access and Knowledge Management: Advanced grouping and aggregation for data integration](#) 
 Eike Schallehn, Kai-Uwe Sattler, Gunter Saake
 October 2001 **Proceedings of the tenth international conference on Information and knowledge management CIKM '01**
 Publisher: ACM Press
 Full text available:  [pdf\(570.54 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

New applications from the areas of analytical data processing and data integration require powerful features to condense and reconcile available data. As outlined in [1], the general concept of grouping and aggregation appears to be a fitting paradigm for a number of these issues, but in its common form of equality based groups or with current extensions like simple user-defined functions to derive group-by values on a per tuple basis and restricted aggregate functions a number of problems remai ...

3 [Location Models from the Perspective of Context-Aware Applications and Mobile Ad Hoc Networks](#) 
 Martin Bauer, Christian Becker, Kurt Rothermel
 January 2002 **Personal and Ubiquitous Computing**, Volume 6 Issue 5-6
 Publisher: Springer-Verlag

Full text available: [pdf\(125.04 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Location models are crucial for providing location-dependent data to context-aware applications. In this paper, we present two approaches for modeling location information taken from an infrastructure-based and an *ad hoc* network-based application scenario. From these approaches we derive requirements for a general location modeling language for ubiquitous computing.

Keywords: Context-awareness, Location models, Ubiquitous computing

4 [Coordination models, languages and applications \(CM\): LightTS: a lightweight, customizable tuple space supporting context-aware applications](#)



Gian Pietro Picco, Davide Balzarotti, Paolo Costa
March 2005 **Proceedings of the 2005 ACM symposium on Applied computing SAC '05**

Publisher: ACM Press

Full text available: [pdf\(200.86 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

The tuple space model inspired by Linda has recently been rediscovered by distributed middleware. Moreover, some researchers also applied it in the challenging scenarios involving mobility and more specifically context-aware computing. Context information can be stored in the tuple space, and queried like any other data. Nevertheless, it turns out that conventional tuple space implementations fall short of expectations in this new domain. On one hand, many of the available systems provide a wealth ...

5 [Acoustic environment as an indicator of social and physical context](#)

Dan Smith, Ling Ma, Nick Ryan

March 2006 **Personal and Ubiquitous Computing**, Volume 10 Issue 4

Publisher: Springer-Verlag

Full text available: [pdf\(731.76 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

Acoustic environments provide many valuable cues for context-aware computing applications. From the acoustic environment we can infer the types of activity, communication modes and other actors involved in the activity. Environmental or background noise can be classified with a high degree of accuracy using recordings from microphones commonly found in PDAs and other consumer devices. We describe an acoustic environment recognition system incorporating an adaptive learning mechanism and its use ...

Keywords: Acoustic environment, Adaptive feedback, Classification, Context awareness, Machine learning, Mobile computing

6 [Supporting service discovery, querying and interaction in ubiquitous computing environments](#)

Adrian Friday, Nigel Davies, Nat Wallbank, Elaine Catterall, Stephen Pink

November 2004 **Wireless Networks**, Volume 10 Issue 6

Publisher: Kluwer Academic Publishers

Full text available: [pdf\(209.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we contend that ubiquitous computing environments will be highly heterogeneous, service rich domains. Moreover, future applications will consequently be required to interact with multiple, specialised service location and interaction protocols simultaneously. We argue that existing service discovery techniques do not provide sufficient support to address the challenges of building applications targeted to these emerging environments.

This paper makes a number of contribu ...

Keywords: distributed systems, middleware, mobile and ubiquitous computing, service discovery, service interaction

7 Doctorial Consortium: The context fabric: an infrastructure for context-aware computing



Jason I. Hong

April 2002 **CHI '02 extended abstracts on Human factors in computing systems CHI '02**

Publisher: ACM Press

Full text available: [pdf\(159.65 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Despite many sensor, hardware, networking, and software advances, it is still quite difficult to build effective and reliable context-aware applications. We propose to build a context infrastructure that provides three things to simplify the task of building context-aware applications: a context data store for modeling, storing, and distributing context data; a context specification language for declaratively stating and processing context needs; and protection mechanisms for safeguarding privac ...

Keywords: context awareness, context specification language, context-aware computing, data models, implicit input, privacy

8 Triggers over nested views of relational data



Feng Shao, Antal Novak, Jayavel Shanmugasundaram

September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3

Publisher: ACM Press

Full text available: [pdf\(1.40 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Current systems that publish relational data as nested (XML) views are *passive* in the sense that they can only respond to user-initiated queries over the nested views. In this article, we propose an *active* system whereby users can place triggers on (unmaterialized) nested views of relational data. In this architecture, we present scalable and efficient techniques for processing triggers over nested views by leveraging existing support for SQL triggers over flat relations in commerc ...

Keywords: XML, nested views, relational databases, triggers

9 The anatomy of a context-aware application



Andy Harter, Andy Hopper, Pete Steggles, Andy Ward, Paul Webster

March 2002 **Wireless Networks**, Volume 8 Issue 2/3

Publisher: Kluwer Academic Publishers

Full text available: [pdf\(317.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We describe a sensor-driven, or *sentient*, platform for context-aware computing that enables applications to follow mobile users as they move around a building. The platform is particularly suitable for richly equipped, networked environments. The only item a user is required to carry is a small sensor tag, which identifies them to the system and locates them accurately in three dimensions. The platform builds a dynamic model of the environment using these location sensors and resource informatio ...

Keywords: CORBA, HCI, context-aware computing, location sensors, middleware, mobile

computing, resource monitoring, sentient computing, spatial indexing, visualisation

10 Advanced SQL modeling in RDBMS

Andrew Witkowski, Srikanth Bellamkonda, Tolga Bozkaya, Nathan Folkert, Abhinav Gupta, John Haydu, Lei Sheng, Sankar Subramanian
March 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 1

Publisher: ACM Press

Full text available: [pdf\(279.06 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Commercial relational database systems lack support for complex business modeling. ANSI SQL cannot treat relations as multidimensional arrays and define multiple, interrelated formulas over them, operations which are needed for business modeling. Relational OLAP (ROLAP) applications have to perform such tasks using joins, SQL Window Functions, complex CASE expressions, and the GROUP BY operator simulating the pivot operation. The designated place in SQL for calculations is the SELECT clause, whi ...

Keywords: Excel, OLAP, analytic computations, spreadsheet

11 Strategies for query unnesting in XML databases

Norman May, Sven Helmer, Guido Moerkotte
September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3

Publisher: ACM Press

Full text available: [pdf\(488.86 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Queries formulated in a nested way are very common in XQuery. Unfortunately, their evaluation is usually very inefficient when done in a straightforward fashion. We present a framework for handling nested queries that is based on unnesting the queries after having translated them into an algebra. We not only present a collection of algebraic equivalences, but also supply a strategy on how to use them effectively. The full potential of the approach is demonstrated by applying our rewrites to actu ...

Keywords: Nested queries, XML, XQuery, query decorrelation, query optimization

12 Context- and location-aware approaches: Context-aware optimization of continuous range queries maintenance for trajectories

Goce Trajcevski, Hui Ding, Peter Scheuermann
June 2005 **Proceedings of the 4th ACM international workshop on Data engineering for wireless and mobile access MobiDE '05**

Publisher: ACM Press

Full text available: [pdf\(183.44 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This work addresses the problem of efficient *maintenance* of the (correct) answers to the continuous spatio-temporal range queries in Moving Objects Databases (MOD), which represent the objects' motion as *trajectories*. Specifically, we consider the settings of optimizing the *response time* of the system when the queries need to be brought up-to-date as a result of *bulk update* to the trajectories in the MOD. Such updates occur when an *abnormality* occurs in some c ...

Keywords: moving objects databases, triggers

13

1st international workshop on advanced data processing in ubiquitous computing

◆ [\(ADPUC 2006\): Spatio-temporal sensor data management for context-aware services: designing sensor-event driven service coordination middleware](#)

Akio Sashima, Yutaka Inoue, Koichi Kurumatani

November 2006 **Proceedings of the 1st international workshop on Advanced data processing in ubiquitous computing (ADPUC 2006) ADPUC '06**

Publisher: ACM Press

Full text available:  [pdf\(353.84 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

How various kinds of sensor devices are handled, and how numerous lower-level sensor data are managed and integrated into higher-level context representations are important issues to realize context-aware services. We have been developing Sensor-Event-Driven Service Coordination Middleware (SENSORD) to fill coordination gaps between higher-level services and lower-level sensors. The SENSORD system obtains and stores sensor data into an in-memory data container to achieve fast, complex analysis o ...

14 [The anatomy of a context-aware application](#)

◆ [Andy Harter, Andy Hopper, Pete Steggles, Andy Ward, Paul Webster](#)

August 1999 **Proceedings of the 5th annual ACM/IEEE international conference on Mobile computing and networking MobiCom '99**

Publisher: ACM Press

Full text available:  [pdf\(1.58 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



15 [Technical papers: software architecture I: A component architecture for an extensible, highly integrated context-aware computing infrastructure](#)

William G. Griswold, Robert Boyer, Steven W. Brown, Tan Minh Truong

May 2003 **Proceedings of the 25th International Conference on Software Engineering ICSE '03**

Publisher: IEEE Computer Society

Full text available:   [pdf\(1.30 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



Ubiquitous context-aware computing systems present several challenges in their construction. Principal among them is the tradeoff between easily providing new context-aware services to users and the tight integration of those services, as demanded by the small form factor of the devices typically found in ubiquitous computing environments. Performance issues further complicate the management of this tradeoff. Mechanisms have been proposed and toolkits developed for aiding the construction of cont ...

16 [PATAXÓ: A framework to allow updates through XML views](#)

◆ [Vanessa P. Braganholo, Susan B. Davidson, Carlos A. Heuser](#)

September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.02 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



XML has become an important medium for data exchange, and is frequently used as an interface to (i.e., a view of) a relational database. Although a lot of work has been done on querying relational databases through XML views, the problem of updating relational databases through XML views has not received much attention. In this work, we map XML views expressed using a subset of XQuery to a corresponding set of relational views. Thus, we transform the problem of updating relational databases thro ...

Keywords: Relational databases, XML views, updates

17 Mobile computing and applications (MCA): Wireless spatio-semantic transactions on multimedia datasets

 James D. Carswell, Keith Gardiner, Marco Neumann
March 2004 **Proceedings of the 2004 ACM symposium on Applied computing SAC '04**
Publisher: ACM Press

Full text available:  pdf(192.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Advances in spatially enabled semantic computing can provide situation aware assistance for mobile users. This intelligent and context-aware technology presents the right information at the right time, place and situation by exploiting semantically referenced data for knowledge discovery. The system takes advantage of new metadata standards to enable semantic, user, and device adapted transactions on multimedia datasets. Information accessed in the past and the activities planned by the user, th ...

Keywords: location based services, semantic queries, spatial data transactions

18 JTL: the Java tools language

 Tal Cohen, Joseph (Yossi) Gil, Itay Maman
October 2006 **ACM SIGPLAN Notices , Proceedings of the 21st annual ACM SIGPLAN conference on Object-oriented programming systems, languages, and applications OOPSLA '06**, Volume 41 Issue 10
Publisher: ACM Press

Full text available:  pdf(386.63 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present an overview of JTL (the Java Tools Language, pronounced "Gee-tel"), a novel language for querying JAVA [8] programs. JTL was designed to serve the development of source code software tools for JAVA, and as a small language which to aid programming language extensions to JAVA. Applications include definition of pointcuts for aspect-oriented programming, fixing type constraints for generic programming, specification of encapsulation policies, definition of micro-patterns, etc. We argue ...

Keywords: declarative programming, reverse engineering

19 A mobile computing middleware for location- and context-aware internet data services

 Paolo Bellavista, Antonio Corradi, Rebecca Montanari, Cesare Stefanelli
November 2006 **ACM Transactions on Internet Technology (TOIT)**, Volume 6 Issue 4
Publisher: ACM Press

Full text available:  pdf(316.77 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The widespread diffusion of mobile computing calls for novel services capable of providing results that depend on both the current physical position of users (location) and the logical set of accessible resources, subscribed services, preferences, and requirements (context). Leaving the burden of location/context management to applications complicates service design and development. In addition, traditional middleware solutions tend to hide location/context visibility to the application level an ...

Keywords: Mobile computing, adaptive services, context awareness, location awareness, middleware, mobile agents, policies

20 Query optimization in distributed networks of autonomous database systems

Fragkiskos Pentaris, Yannis Ioannidis

June 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 2

Publisher: ACM Press

Full text available: [!\[\]\(77634a81c987bf5f6571c89605768d45_img.jpg\) pdf\(1.55 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Large-scale distributed environments, where each node is completely autonomous and offers services to its peers through external communication, pose significant challenges to query processing and optimization. Autonomy is the main source of the problem, as it results in lack of knowledge about any particular node with respect to the information it can produce and its characteristics, for example, cost of production or quality of produced results. In this article, inspired by e-commerce technolog ...

Keywords: Query optimization

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Dan Smith, Ling Ma, Nick Ryan

March 2006 **Personal and Ubiquitous Computing**, Volume 10 Issue 4

Publisher: Springer-Verlag

Full text available:  [pdf\(731.76 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

Acoustic environments provide many valuable cues for context-aware computing applications. From the acoustic environment we can infer the types of activity, communication modes and other actors involved in the activity. Environmental or background noise can be classified with a high degree of accuracy using recordings from microphones commonly found in PDAs and other consumer devices. We describe an acoustic environment recognition system incorporating an adaptive learning mechanism and its use ...

Keywords: Acoustic environment, Adaptive feedback, Classification, Context awareness, Machine learning, Mobile computing

2 [Frontmatter \(TOC, Letters, Philosophy of computer science, Interviewers needed, Taking software requirements creation from folklore to analysis, SW components and product lines: from business to systems and technology, Software engineering survey\)](#) 

September 2005 **ACM SIGSOFT Software Engineering Notes**, Volume 30 Issue 5

Publisher: ACM Press

Full text available:  [pdf\(1.98 MB\)](#) Additional Information: [full citation](#), [index terms](#)

3 [Software engineering II: A relational database model for representation of formal specifications](#) 

Robert Leithiser

March 2006 **Proceedings of the 44th annual Southeast regional conference ACM-SE 44**

Publisher: ACM Press

Full text available:  [pdf\(255.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Literature has established the effectiveness of formal specifications for modeling specifications for computer system properties as well as for verifying program correctness.

However, tools that can enable the typical commercial software developer to utilize formal methods are not in widespread use. A possible reason for this is that commercial tools can more easily be produced if industry-standard storage mechanisms such as relational database management systems (RDBMS) can be leveraged as repo ...

Keywords: RDBMS, Zed, formal methods, formal specification, relational database management system, relational state, state transition

Results 1 - 3 of 3

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Result # 11
Relevance:  4.5/5

Enabling Intent Based Call from Caller

2007-03-08 IPCOM000147297D Eng

In present world where people have multiple roles and responsibilities in different social office, home, friends etc, there may be multiple call contexts associated with single tele request. Knowing various call contexts associated with a single call ...

Result # 12
Relevance:  4.5/5

Call Intent based "Enhanced Caller ID"

2007-03-08 IPCOM000147296D Eng

Knowledge of call intents can help the receiver to take most appropriate action(s) for a call. For ad-hoc communication requests, present call handling at receiving end is limited phone number with some high level user context information like user ...

Result # 13
Relevance:  4.5/5

Enabling Seamless Contextual Collaborations for Mobile Enterprises

2007-02-27 IPCOM000146924D Eng

Enterprises are increasingly becoming mobile. Increasing mobility brings about the need for anytimeanywhere collaboration scenarios using different sets of devices, services and networks at different times. The need is to enable seamless contextual collaborations, ...

Result # 14
Relevance:  4.5/5

FOCALE: A Novel Autonomic Networking Architecture - Extended Version

2006-12-20 IPCOM000141385D Eng

Network resources will always be heterogeneous, and thus have different functionalities and programming models. This adversely affects interoperability. Our approach establishes a "lingua franca" through the combination of information models and knowledge engineer

Result # 15
Relevance:  4.5/5

Policy-Based Context-Aware Management for Autonomic Networks

2006-09-01 IPCOM000144799D Eng

This was a keynote presentation to the Autonomic Networking Conference, held in Paris in September 2006. It provides an overview of the motivation for autonomic principles applied to networking, then defines autonomic computing, and then describes the FOCAL ...

Result # 16
Relevance:  4.5/5

Eliminating Reference Ambiguity in Instant Message Replies

2007-01-31 IPCOM000145903D Eng

Chat conversations are widely adopted for various types of communications - business, personal, etc. A two-party instant message dialogue typically has both parties sending/ information simultaneously unlike face-to-face conversation where only one speaks at .

Result # 17
Relevance:  4.5/5

e-Science platform for cross-institutional, interdisciplinary, collaborative research in emerging sciences and technologies

2006-03-13 IPCOM000134640D Eng

The emerging industries such as life sciences, nanoscience, nanotechnology, material sciences and environmental sciences require an IT solution that enables multidisciplinary collaborative research across organizational boundaries as well as provisioning of transparency over ...

Result # 18 Relevance:  1000 800 600 400 200

A Partition Strategy for Programming Language Editors

2004-01-21 IPCOM000021495D

Eng

Text-based source code editors are often equipped with user-friendly features like syntax highlighting, content assist, and document outline. For performance reasons, it is not a good idea to update the presentation of entire document on every change. A technique used to ...

Result # 19 Relevance:  1000 800 600 400 200

Parser-State Based Method for Non-reserved Keyword Resolution

2004-01-21 IPCOM000021494D

Eng

Most conventional programming languages define sets of reserved words that cannot be used as identifiers, such as names of variables or other programming language entities. Some languages like SQL or ADA for example, introduce a lexical construct named nonreserved ...

Result # 20 Relevance:  1000 800 600 400 200

Ambient Mobile Communications

2006-04-01 IPCOM000140970D

Eng

In a world where people are busier than ever and are bombarded with more information than they can process, ambient communications through mobile media can provide rich social context for friends and family. Users can stay connected to the people that they care about by ...

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Result # 21 Relevance:  **Improved Wearable Sensor Systems**

23-Jul-2004

IPCOM000030041D

Eng

A condition monitoring system is proposed that employs radio frequency identification (RFID) technology and other recent advances in information management to provide improved condition monitoring systems relative to what is currently available on the market. In ..

Result # 22 Relevance:  **Message Context for Internet Mail (RFC3458)**

2003-01-01

IPCOM000011353D

Eng

This memo describes a new RFC 2822 message header, "Message-Context". This header provides information about the context and presentation characteristics of a message.

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L2	17	1 and (SQL or (structured adj query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:27
L3	11	2 and user adj interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:28
L4	9	3 and record and display\$6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:25
L5	4	1 and 707/4.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:33
L6	1	5 and (SQL or (structured adj query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:27
L7	24277	(SQL or (structured adj query))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:32
L8	17	7 and context adj aware	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:29
L9	11	8 and user adj interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:29

EAST Search History

L10	16	8 and interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:28
L11	11691	7 and context	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:29
L12	7262	11 and user adj interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:29
L13	3343	12 and relational and table and record	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:30
L14	1688	13 and (display\$5 or present\$4) same (download\$4 or (down adj load\$4) or transfer\$6 or transmi\$7)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:31
L15	2985	13 and (display\$5 or present\$4) and (download\$4 or (down adj load\$4) or transfer\$6 or transmi\$7)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:31
L16	462	13 and ((display\$5 or present\$4) with (record or table)) and ((download\$4 or (down adj load\$4) or transfer\$6 or transmi\$7) with (record or table))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:32
L17	165	16 and ((SQL or (structured adj query)) adj2 (statement or clause or command))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:34
L18	9	17 and 707/4.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:34
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L20	10	16 and ((SQL or (structured adj query)) adj2 (statement or clause or command)) same context	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:44
L21	130	16 and ((SQL or (structured adj query)) adj2 (statement or clause or command)) same (context or table or filed or column or record)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:43
L22	8	21 and 707/4.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:35
L23	67	16 and ((SQL or (structured adj query)) adj2 (statement or clause or command)) with (context or table or filed or column or record)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:43
L24	67	21 and ((SQL or (structured adj query)) adj2 (statement or clause or command)) with (context or table or filed or column or record)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:43
L25	6	24 and relational adj table	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:54
L26	0	1 and relational adj table	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:54
L27	51	1 and relational and table	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:55
L28	42	1 and relational and table and (query or SQL)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:57
L29	7	1 and relational and table and (SQL)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 14:57

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L2	0	1 and context and shortcut and (icon or cursor or dialog or menu)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:32
L3	0	1 and context and shortcut and (SQL oe quer\$6 or retriev\$6 or extract\$6 or icon or cursor or dialog or menu)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:33
L4	0	1 and context and shortcut and (SQL or quer\$6 or retriev\$6 or extract\$6 or icon or cursor or dialog or menu)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:33
L5	2	"20030135498".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:33
L6	2	5 and context and shortcut and (SQL or quer\$6 or retriev\$6 or extract\$6 or icon or cursor or dialog or menu)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:35
L7	2	5 and context and shortcut and (SQL or quer\$6 or retriev\$6 or extract\$6 or icon or cursor or dialog or menu or select)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:35
L8	2	5 and context	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:35
L9	2	5 and shortcut	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:44

EAST Search History

L10	2739822	user adn interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:03
L11	1231	10 and SQL and select near5 (clause or statement or command) and (relational with table)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:23
L12	1246	SQL and select near5 (clause or statement or command) and (relational with table)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:45
L13	1475	SQL and select near5 (clause or statement or command) and (relational with table)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:46
L14	1475	SQL and (select near5 (clause or statement or command)) and (relational with table)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:46
L15	920	14 and (user and interface) same (SQL or query)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:47
L16	769	15 and "707"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:47
L17	563	15 and "707"/1,2,3,4,5,6,7,10.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:58
L18	445	17 and record and (column or field)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:48
L19	181	17 and record same (column or field) same table same (query or select or SQL)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:20

EAST Search History

L20	0	5 and clause	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:53
L21	0	5 and "where"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 12:53
L22	23	15 and query adj template	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:22
L23	9	22 and "707"/1,2,3,4,5,6,7,10.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:02
L24	2519	707/4.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:22
L25	1132	24 and user adj interface	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:03
L26	63	25 and (select same interface same (((SELECT adj2 (clause or statement or command)) or (SQL or (structure\$1 adj query adj language))))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:06
L27	53	25 and (select same interface same (((SELECT or SQL) adj2 (clause or statement or command)) or (structure\$1 adj query adj language)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:10
L28	50	25 and (select! same interface same (((SELECT or SQL) adj2 (clause or statement or command)) or (structure\$1 adj query adj language)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:10
L29	146	25 and (interface same (((SELECT! or SQL) adj2 (clause or statement or command)) or (structure\$1 adj query adj language)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:23

EAST Search History

L30	21	29 and (display\$6 or present\$4) with record	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:13
L31	10	30 and (download\$4 or (down adj load\$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:26
L34	2	31 and record same (column or field) same table same (query or SQL)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:21
L35	291	query adj template	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:22
L36	151	35 and "707"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:23
L37	45	36 and (relational with table)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:23
L38	15	37 and (user adj interface) and (((SELECT! or SQL) adj2 (clause or statement or command)) or (structure\$1 adj query adj language))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:24
L39	14	38 and (download\$4 or (down adj load\$4) or transfer\$6 or transmi\$9 or send\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:27
L40	14	38 and (download\$4 or (down adj load\$4) or transfer\$6 or transmi\$9)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/04/17 13:27